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the future exclusion of all publications between Linnæus's *Genera Plantarum* of the former date and his *Species Plantarum* of the latter date.

The morphology, biology, and physiology of the flower of the great Amazon water lily, *Victoria regia*, are treated by Eduard Knoch, in Heft 47 of Luerksen and Frank's *Bibliotheca Botanica*.

A paper on the structure and biology of *Cynomorium coccineum* is reprinted by Baccarini from the *Atti* of the Accademia Gioenia, of Catania.

Three new grasses from North Carolina are described by Ashe in a recent number of the *Journal* of the Elisha Mitchell Scientific Society.

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#### PALEONTOLOGY.

**Fossil Medusæ.**<sup>1</sup> — A few years ago no one would have suspected that the rocks of the world could ever yield fossil jellyfish sufficient in quantity to warrant the publication of a quarto monograph of 201 pages and forty-seven plates like the present volume. Equally unlooked for would have been the fact that the oldest known fauna, the Cambrian, was to furnish a large part of the species, together with a great abundance of specimens.

Dr. Nathorst of Sweden (1881) first described Medusæ from the Cambrian, and Walcott, in 1891, suggested that the long-known *Dactyloidites asteroides* of Fitch (*sp.*), from the Cambrian slates of New York, might indicate portions of fossil jellyfish. The true affinities of the puzzling Alabama "star-cobbles" were likewise determined by Walcott in 1893, so that gradually both the subject of fossil Medusæ and the material for study grew sufficiently large to necessitate a separate treatment.

The present volume gives a full review of all the known fossil organisms that are now referred to the Medusæ, including both casts and impressions of the body or parts of the animal, and certain trails or markings, such as could be made by dragging the arms or tentacles over the mud of the sea bottom.

<sup>1</sup> Walcott, Charles Doolittle. Fossil Medusæ, *Monographs of the U. S. Geological Survey*, vol. xxx, pp. i-x, 1-201, Pls. I-XLVII. Washington, 1898.

All the undoubted fossil species are classed with the Discomedusæ, and as Haeckel considers this suborder as genetically late in the history of the Acraspeda, their presence in the Cambrian indicates that the differentiation of the class into orders must have taken place in pre-Cambrian time.

There are seven species known from the Cambrian of the United States, Sweden, Esthonia, Russia, and Bohemia. A single species has been noted in the Permian of Saxony, and twelve forms have been described from the lithographic slates of Bavaria. These twenty species, together with two doubtful forms, are described with as much completeness of detail as the preservation of the specimens will permit. Their treatment, as a whole, furnishes the student with a valuable thesaurus of all the available knowledge on the group and a wealth of excellent illustrations.

For a long time the early name of Medusites of Germar (1826) was employed as a generic term to include all fossil jellyfish, but as the original specimens appear to belong to Lumbricaria, Walcott proposes the name Medusina to include all species the true generic character of which cannot be ascertained. Under this term three Cambrian, one Permian, and six Jurassic species are placed, thus leaving but ten species sufficiently well preserved to be satisfactorily defined and classified. Of these ten species six are from the Jurassic of Bavaria and are described under six generic designations. The remaining four species are from American Cambrian terranes and comprise *Brooksella alternata*, *B. confusa*, *Laotira cambria*, and *Dactyloidites asteroides*. The compound nature of *Laotira* is of unusual interest, especially some specimens of *L. cambria* and *D. asteroides* that indicate occasional reproduction by means of lateral fission. Among recent genera this process is extremely rare.

The giving to indeterminate and unknown markings, mostly inorganic, a binomial nomenclature is quite as productive scientifically as giving generic and specific names to fog and thunder. One such term is "Eophyton," described in 1868 as a plant with monocotyledonous affinities. It has since been enriched by a number of species. Nathorst was of the opinion that many of these fossils represented trails of Medusæ. Walcott concurs in this and supplements it by proving similar markings to be casts of trails of drifting Algæ in shallow water.

C. E. B.